



ONDC: Opportunities & Challenges for Cloud Kitchen Owners

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Abstract

The current digital commerce landscape is dominated by closed platforms, where buyers, sellers, and network participants interact freely but in a limited ecosystem. In contrast to an open network, a closed network restricts access. It creates a contained communication and data exchange environment and remains costly for small business owners. Open Networks Digital Commerce (ONDC) intends to eliminate this limitation. For instance, ONDC charges a commission of only 2-4%, less than half the substantial 18-25% commissions charged by food aggregators present on closed networks. The research primarily explores the opportunities for cloud kitchen owners over an open network. The findings reveal cost opportunities for cloud kitchen owners and their marketing, technology integration, and payment processing dilemmas. The findings are novel and provide insights to the policymakers as ONDC is still in its nascent stage, a perspective from stakeholders would be of immense importance.

Keywords: Close Network, Open Network, ONDC, Digital Commerce, Cloud Kitchen Owners.

1. Introduction

ONDC is a revolutionary initiative by the Indian government that aims to create a more open, inclusive, and competitive e-commerce ecosystem. Unlike established platforms that operate as single entities, ONDC functions as a neutral infrastructure, connecting buyers with sellers through a network of applications. This decentralized approach presents a unique opportunity for food businesses, particularly small and medium-sized enterprises (SMEs), to thrive in the digital marketplace. It's interesting to know that, by 2027, the global market for online meal delivery is projected to rise from \$130 billion to \$237 billion (Statista, 2022a). India's online food delivery industry is expected to grow sixfold by FY30. (McKinsey, 2023). In this way, the sector is positioned to draw different commercial organizations, entrepreneurs, and marketers (Shankar et al., 2022). But in today's digital age, reaching customers goes beyond the storefront. The rise of e-commerce has opened a new avenue for food businesses to expand their reach and connect with a wider audience. However, existing online closed network platforms often present a challenge, with

concerns about high commissions, limited control, and restricted customer interaction [1-3]. In order to maintain a competitive advantage, it is imperative for small businesses to reevaluate their current business models in the presence of the open network. The idea of a business model has grown to be quite important to companies over Open Network Digital Commerce (ONDC) since it enables them to spot areas where they may innovate and improve their operations. Researchers have anticipated the potential benefits of ONDC in form of increased competition, lower prices for consumers, and more choices for buyers. However, ONDC would face some challenges also such as technological integration, marketing and promotion, and convincing and educating both consumers and sellers about the new platform (Dash et al., 2023) [4]. ONDC ensures small businesses including cloud kitchen owners (CKOs) about smooth payment processing, reachability to remote areas and a new unbiased rating mechanism which allows them to switch to any platform with their existing ratings. ONDC allows CKOs to choose delivery partners, which means CKOs have their own



delivery channels and save on extra cost. Thus, restaurants are exploring direct delivery models, either managing deliveries themselves or partnering with third-party logistics providers [5]. This approach offers greater control over delivery costs but requires investment in logistics infrastructure. The aroma of sizzling kebabs, the vibrant colors of fresh vegetables, the delightful clinking of glasses – the food industry thrives on creating experiences that tantalize the taste buds and warm the heart. The paper aims at understanding the opportunities and challenges to CKO over ONDC platform [6]. The paper suggests three opportunities and three challenges to CKOs and concludes the findings in light of the interviews done with the CKOs and ONDC officials.

2. Literature Review

Currently, the entire e-commerce works over closed network world-wide. A closed network, in contrast to an open network, restricts access and creates a contained environment for communication and data exchange. Unlike open networks where anyone can connect, closed networks are exclusive. They only allow authorized devices and users to join. Users verify their identity with credentials like usernames and passwords [7-10]. Even with valid credentials, users might only have access to specific resources within the network. Not all devices may be allowed on the network. There could be limitations based on type, operating system, or MAC address (a unique identifier for network cards). These act as gatekeepers, filtering incoming and outgoing traffic based on pre-defined security rules. Data and communication primarily flow within the closed network. There might be limited or no connection to the external internet or other open networks. By restricting access points, the network becomes less vulnerable to external threats like malware or unauthorized intrusion. Closed networks are often used to safeguard confidential data, such as patient records in a hospital or financial information in a bank. Organizations can regulate the flow of information and prioritize specific types of network traffic. While closed networks offer enhanced security and control, they can also limit flexibility and information exchange. Through apps like Swiggy

and Zomato, restaurants gain access to a wider customer base, particularly in areas with limited foot traffic. Customers enjoy the ease of ordering food from home and having a variety of options at their fingertips [11]. Delivery-only restaurants have flourished due to the platforms' reach. While restaurants pay a commission on each order, which can impact their profit margins, there can be tension between restaurants and platforms regarding commission rates and data ownership [12].

2.1. Concerns of CKOs Over Closed Network

CKOs face numerous barriers to obtaining digital payment services due to the high prices and technical requirements of closed networks. The other challenges include limited competitiveness, difficulty competing on price, and a lack of discoverability for small sellers (Dash et.al., 2023). An open network could improve CKOs' access to digital payment services, lower prices, and boost competition in the digital food industry [13-15]. Researchers have also investigated the consumer behavior and purchase intention on a new open network (ONDC) and found that out of price, discovery time, privacy concerns, security concerns, and trust, security is the most important factor affecting a consumer's decision to purchase on ONDC. Price was also found to be a significant motivator for consumers (Deloitte, 2023). Thus, CKOs highlighted monopoly, high prices, technical requirements, rating system, priority in search optimization, creation of in-house products by the aggregators over closed networks as the major concerns. CKOs would also be impacted by technological disruptions (Vig and Agarwal 2021; Khan et al., 2020), including open networks. The objective of the paper is to study the challenges and opportunities for CKOs over ONDC [16-19].

Proposition 1: A close network (eg. Zomato, Swiggy) provides a lesser profit margin, limited reachability and higher level of competition to CKOs in comparison to an open network (eg. ONDC) [20].

2.2. Concerns of CKOs Over Open Network

CKOs are small business owners eg, house chiefs, and street food vendors. ONDC might increase the operational complexity for them. For instance, Managing deliveries in-house or coordinating with multiple third-party providers can be more

demanding compared to established platforms that handle logistics entirely. Restaurants might need to invest in additional staff or technology to manage deliveries effectively. Another complexity would be marketing and customer Acquisition, ONDC is a relatively new platform [21]. Reaching a wide customer base might require restaurants to invest in marketing efforts beyond simply listing themselves on the network (Dash et. al., 2023). Also, CKOs would incur additional cost related to technology integration, integrating ONDC with existing restaurant management systems might involve additional costs, especially during the initial development stages. The open network structure

could lead to fragmentation across buyer apps, potentially confusing consumers and requiring restaurants to manage listings on multiple platforms which may result in platform fragmentation and CKOs may find it difficult and complex to manage in the absence of complete digitization [22-24]. Figure 1 depicts the operational process of ONDC, which is inclusive yet complex [25].

Proposition 2: ONDC is a complex platform for small food businesses that are yet to digitize their operations [[26-29]. Conceptual model of ONDC diagram is shown in Figure 1.

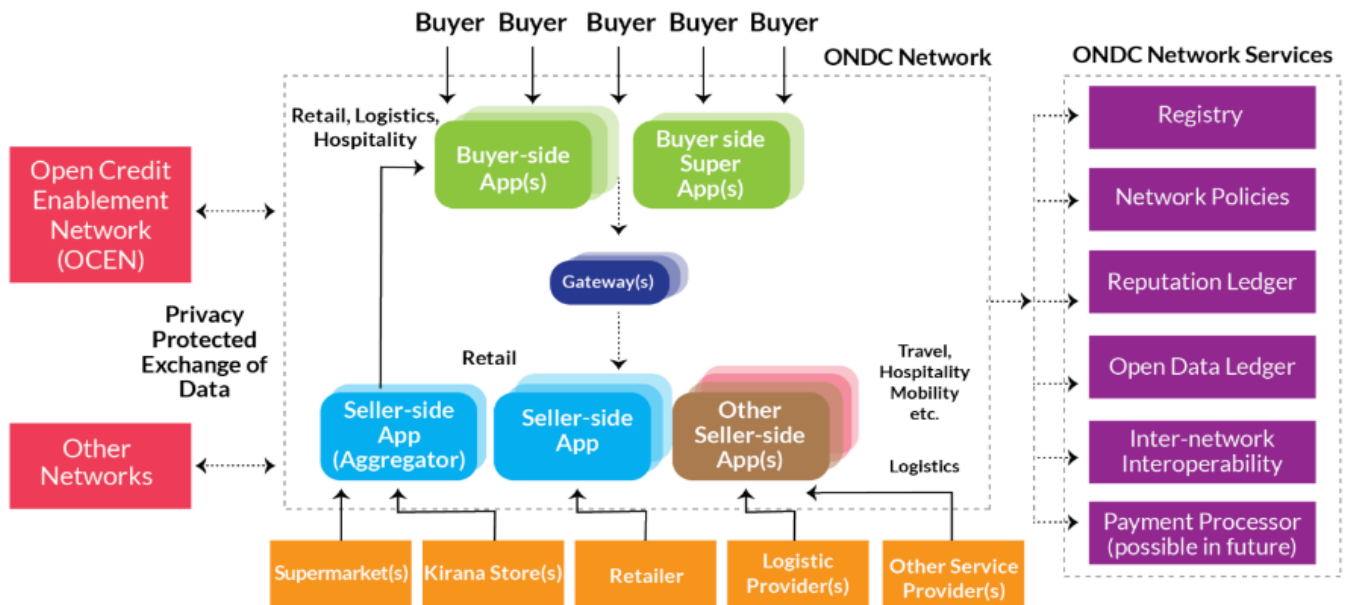


Figure 1 Conceptual model of ONDC

Source: <https://ondc.org/>

3. Method

The review of literature converges to the two Propositions. To explore them further, academic journals, research papers, government reports, industry publications, news articles and financial statements of publicly traded companies are assessed that are specifically related to Cloud Kitchen and ONDC.

3.1. Conceptual Framework

3.1.1. ONDC

Open network protocols will empower any app to discover and connect buyers and sellers across

industries, based on location. This concept, built on decentralization, openness, and user empowerment, has the potential to revolutionize Indian digital commerce. The open network fosters innovation and experimentation at each point (node) by encouraging the adoption of advanced technologies like AI, machine learning, and blockchain. This creates an "open playground" where various stakeholders – businesses, consumers, developers, governments, etc. It can interact, compete, and thrive. The open network disrupts the traditional supply chain model,



shifting power from intermediaries to the end users – consumers, merchants, and service providers. This empowers small businesses to unlock innovation and scale their digital operations more effectively. ONDC (Open Network for Digital Commerce). ONDC is an e-commerce system where small businesses and offline stores can compete fairly with giants like Amazon, Zomato and Swiggy etc. That's the goal of ONDC, a revolutionary open-network platform inspired by the success of UPI in payments. Unlike traditional platforms that lock sellers in, ONDC allows them to reach customers and build credit history regardless of the app they use. This levels the playing field and empowers both sellers and buyers. This initiative has the potential to reshape e-commerce in India, offering a fairer, more secure, and more efficient system for everyone.

3.1.2. ONDC E-Commerce Model

ONDC thrives as a decentralized network, relying on a diverse group of participants to connect merchants and buyers. These participants come from various sectors like retail, logistics, hospitality, and more. Let's delve into the three key categories:

- a) **Buyer Apps (Buyer Nodes):** These apps cater to the buyer's journey, helping them find and purchase products on the ONDC network. They handle functions like attracting buyers, facilitating product discovery, and enabling order placement. Think of them as digital shop fronts for buyers within the ONDC ecosystem.
- b) **Seller Apps:** These manage the seller side of transactions and come in two flavors:
 - **Marketplace Seller Nodes (MSNs):** These act as aggregators, allowing non-network participants (sellers) to join the ONDC party. MSNs function like online marketplaces, facilitating transactions for sellers without holding inventory themselves.
 - **Inventory Seller Nodes (ISNs):** These are sellers who are also active participants in the network. They list and sell their own inventory directly through the ONDC platform.
- c) **Gateways:** These act as communication hubs, broadcasting search queries and gathering results. Imagine them as traffic controllers in the ONDC

network, ensuring buyers find the products they seek from the right sellers. Gateways play a vital role in facilitating efficient search and discovery within the network.

3.1.3. Cloud Kitchen over ONDC or Closed Network

While considering these choices, the idea of a "cloud kitchen," which prepares meals and delivers it to customers' doorsteps (John, 2021), appears to be a workaround for current businesses. However, cloud kitchens' increasing potential as a viable business approach demands exploring this disrupting and developing phenomenon. Cloud kitchens are an emerging phenomenon due to the high penetration of the internet and smartphones. Cloud kitchens offer affordable and value-oriented customer experience to the users. This sector has witnessed tremendous growth in the pandemic and sized \$56 Billion in 2021 and is expected to reach \$112 billion by 2027 (Statista, 2022b). The above data portrays a promising future. When customers place orders, the food is typically delivered straight to them by cloud kitchens, who frequently use outside delivery options or third parties (Lock, 2022a). It allows businesses to expand while cutting back their two biggest operational costs – rent and labour. No stewards, no uniforms, no furniture, soft furnishings or other expensive décor just straight food service for a group of chefs and cooks delivering to their customers. from the business perspective, it allows them to operate at low rental and labor costs (John, 2021). Building upon the benefits of being a cloud kitchen it depends upon CKOs to the right platform as per their objectives and scale. For instance, Cost-Conscious Sellers may prefer ONDC's lower commissions in the case of high-margin restaurants. Marketing Savvy Sellers might consider ONDC's lower fees and build a customer base through targeted marketing efforts. ONDC allows for greater control over pricing and branding, potentially leading to higher profit margins. ONDC's open network fosters innovation within the food delivery space (Mahesh et. al., 2023). Restaurants can explore new marketing strategies and experiment with different delivery models to attract customers However, Swiggy and Zomato's are established networks offer convenience, especially if



managing deliveries in-house is not feasible. Swiggy/Zomato offer quicker access to a large customer base.

4. Analysis

Based on the above two sections, both the Propositions are analyzed to reach the object of the paper. Largely facts and figures used are secondary and have been compiled based on the information available in the public domain. The author has also included the insights drawn while discussing the scope of ONDC with ONDC officials, CKOs (eg. Abcoffee) and entrepreneurs (eg. founder of EnFuse), in an entrepreneurial event organized to understand the possibilities of ONDC for businesses.

4.1 Proposition 1

A close network (eg. Zomato, Swiggy) provides a lesser profit margin, limited reachability and higher level of competition to CKOs in comparison to an open network (eg. ONDC). Refer Table 1.

4.1.1 Commissions

Swiggy/Zomato: These platforms charge commissions that can range from 15-30% per order, significantly impacting profit margins.

ONDC: ONDC is a commission-light model. Sellers pay a small fee to a network service provider (NSP) to connect to buyers. This fee is typically much lower than Swiggy/Zomato commissions. Currently, ONDC operates without charging any fees. However, this is not intended to be a permanent model. The report emphasizes that ONDC's status as a not-for-profit Section 8 company allows them to operate on shareholder funds for several months and pursue additional fundraising if necessary. The report further discusses the case of Magicpin, a buyer app within the ONDC network. Magicpin has not yet implemented seller commissions to cover fees associated with buyer apps (e.g., 3% commission for Paytm) and potential future commissions shared with ONDC (which currently doesn't charge but could introduce seller app fees of 1-2% for long-term sustainability). This suggests that current commission rates within the ONDC ecosystem might be heavily subsidized

Annual Registry Fee: Network participants would be subject to an annual registration fee.

Transaction Levy: A levy would be applied to each transaction conducted through the ONDC network.

4.1.2 Marketing & Advertising

Swiggy/Zomato: Platforms offer premium placements and advertising options, but these come at an additional cost.

ONDC: ONDC relies more on organic discovery within the network. While sellers can promote themselves, it requires a different marketing strategy compared to established platforms.

4.1.3 Logistics

Swiggy/Zomato: Both platforms offer delivery services for a fee or expect sellers to manage deliveries themselves.

ONDC: ONDC doesn't handle logistics. Sellers need to manage deliveries themselves or partner with a separate logistics provider, adding cost.

4.1.4 Customer Reach

Swiggy/Zomato: These platforms have a large established user base, offering immediate access to a wider audience.

ONDC: Being a new platform, ONDC's user base is still growing. Reaching a large audience might take time. However, it offers access to a potentially broader network of buyers in the long run.

4.1.5 Control & Flexibility

Swiggy/Zomato: Sellers have less control over pricing and promotions as platforms often run discounts and promotions.

ONDC: Sellers have greater control over pricing, promotions, and customer interactions, allowing for more strategic marketing.

4.1.6 Data Ownership

Swiggy/Zomato: Seller data belongs to the platform, limiting their ability to analyze customer behavior and target marketing efforts.

ONDC: Sellers own their customer data, allowing them to gain valuable insights and personalize marketing strategies.

Proposition 1 holds the fact that the Open Network for Digital Commerce (ONDC) is emerging as a major disruptor in the Indian food delivery market. Unlike traditional platforms like Swiggy and Zomato, ONDC connects restaurants directly with consumers through various buyer apps. This direct connection



translates to significant cost savings for restaurants. ONDC charges a commission of only 2-4%, less than half the hefty 18-25% commissions typically charged by Swiggy and Zomato. This allows restaurants to price their offerings more competitively. Restaurants

on ONDC manage deliveries themselves or partner with third-party providers like Shadowfax, Dunzo, and Loadshare. This flexibility allows them to potentially find the most cost-effective delivery option.

Table 1 Opportunities and Challenges to CKOs Over ONDC

S.No	Feature	CKOs on ONDC	CKOs on Food Aggregators
1	Commission Fee	2-4%	10-25%
2	Delivery Management	Seller Managed	Platform Managed
3	Delivery Cost	Potentially Lower (if efficient)	Higher (delivery fee + commission)
4	Marketing & Promotions	Potentially Higher Costs	Lower Costs (established platforms)
5	Technology Integration	Potentially Higher Costs	Lower Costs (established apps)
6	Payment Processing Fees	Likely Present	Likely Present
7	Customer experience	Customers switch to buyer apps on the network, correctly tagging restaurant and meal-related information and displaying dynamic delivery times.	Review on Platform, subject to approval after the submission
8	Logistics capabilities	Third-party logistics providers such as Pidge could optimize the three-sided marketplace (restaurants, delivery personnel, and customers)	Aggregator's chosen delivery partners
9	Digitalization of small restaurants and home chefs	Seller apps could support small eateries and home chefs through easy-to-use interfaces that assist with onboarding, inventory management, certifications and pricing.	Not available
10	Visibility	Buyer apps could optimize their search algorithms to display P2P and non-chain restaurants based on customer needs (for example, meal preferences and fulfillment ratings)	Overall ratings

Source: Author Compilation, and Mckinsey and Company (2023)



4.2 Proposition 2

ONDC is a complex platform for small food businesses that are yet to digitize their operations. CKOs and other small businesses that are not technically sound and digitized so far would incur additional costs in training and maintenance:

- a) **Marketing & Promotions:** Reaching customers might require additional efforts on ONDC compared to established platforms. Leveraging social media, local advertising, and loyalty programs could be crucial for attracting customers on ONDC.
- b) **Technology Integration:** Integrating ONDC with the existing systems might incur costs as the platform is still under development. Swiggy and Zomato offer well-established apps for both restaurants and customers, potentially minimizing integration costs.
- c) **Payment Processing Fees:** Both ONDC and established platforms likely have payment processing fees associated with online transactions.
- d) **Training and Transaction Cost:** ONDC might also charge training and onboarding costs, for example, ONDC requires a dedicated bank account to operate on its platform. This will again increase complexity for small businesses not registered or having existing bank accounts.

Proposition 2 holds its assumption that ONDC's long-term impact remains to be seen, it has undoubtedly shaken up the Indian food delivery landscape. Whether it can dethrone the current giants or force them to adapt their strategies remains to be determined, but one thing is still to consider - ONDC is in its pilot stage, it requires digitization at the lowest to the lowest level to onboard the small CKOs such as house chiefs. It also demands training in payment processes, technical know-how, supply chain, and more importantly ethical considerations. Timely delivery and quality checks are still unanswered. UPI as the success story, has a couple of stakeholders aligned to achieve one goal – democratization of the payment system. However, ONDC is operating at a very high magnitude with

multiple stakeholders and industries and targeting billions of people.

Conclusions

ONDC is already operational in over 230 Indian cities and boasts over 29,000 sellers offering a wide variety of products. Several prominent buyer apps like Paytm, PhonePe's Pincode, Meesho, Magicpin, and Mystore have joined the platform, while seller apps like Alpino, Bitlsila, Bizom, and BoAt are also leveraging the network. A recent report by McKinsey predicts that ONDC has the potential to quintuple India's digital consumption by 2030. This surge could pose a significant threat to the dominance of Swiggy and Zomato, which currently hold a combined market share of nearly 100%. Both Swiggy and Zomato are grappling with mounting losses and a slowdown in the food delivery business. To address profitability concerns, Zomato recently sought commission hikes from restaurants, while Swiggy implemented a new "platform fee" for customers. Investor confidence in Swiggy and Zomato has waned, with valuations dropping significantly. Swiggy's valuation has been slashed by a third, while Zomato's stock price has plummeted over 50% since its IPO. ONDC's long-term impact remains to be seen, it has undoubtedly shaken up the Indian food delivery landscape. Whether it can dethrone the current giants or force them to adapt their strategies remains to be determined, but one thing is clear - ONDC offers restaurants a compelling alternative and consumers potentially more affordable food delivery options. ONDC fosters innovation within the food delivery space. Restaurants can explore new marketing strategies and experiment with different delivery models to attract customers. The author has found opportunities to CKOs on open network (ONDC):

- a) **High Commissions:** The hefty commissions charged by food aggregators can significantly eat into restaurant profit margins, especially for smaller establishments with lower order values.
- b) **Limited Control over Branding and Pricing:** Food aggregators might dictate menu display formats or influence pricing strategies, potentially hindering restaurants'



ability to control their brand image and optimize pricing for profitability.

- c) **Dependence on Platform Algorithms:** Search rankings and visibility on food aggregator platforms are often determined by algorithms that factor in commissions paid, customer reviews, and other variables. This can make it challenging for new restaurants or those with lower commission rates to gain visibility and compete effectively.
- d) **Deloitte (2023). ONDC: Commerce @ Bharat** Redefining business models and supply chain
- e) **Logistics Reliance:** Restaurants become reliant on the food aggregator's delivery network for fulfilling orders. Issues with delivery personnel or delays can reflect poorly on the restaurant and damage customer satisfaction.
- f) **Restaurant-Customer Disconnect:** Food aggregators can create a disconnect between restaurants and customers. Restaurants lose direct interaction with diners, making it challenging to gather feedback, build loyalty, and offer personalized service.
- g) **Impact on Local Delivery Services:** The dominance of food aggregators might discourage restaurants from developing their own delivery infrastructure or partnering with local delivery services. This could limit job opportunities within local communities.
- h) **Reduced Costs:** ONDC's significantly lower commission fees (2-4%) compared to established platforms (18-25%) directly translate to higher profit margins for restaurants. This allows them to potentially lower menu prices or offer more competitive deals to customers.
- i) **Greater Control:** Restaurants gain autonomy over their online presence. Unlike platforms like Swiggy and Zomato, ONDC doesn't dictate pricing structures or control customer data. Restaurants can manage their own delivery logistics or choose cost-effective third-party providers, giving them

more control over delivery costs and customer experience.

- j) **Wider Reach:** ONDC connects restaurants with a diverse range of buyer apps, expanding their customer base beyond established platforms. This allows them to tap into new markets and potentially reach a wider audience.

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